ABSTRACT

~~An improved~~A multi-channel optical equalizer ~~method and apparatus~~ for intersymbol interference mitigation compensates for single- or multi- wavelength channels simultaneously and requires few adjustable parameters. The optical equalizer ~~can also compensate~~ compensates for overshoots and signal transition degradations ~~of a~~ in semiconductor optical ~~amplifier~~ amplifiers. The equalizer unit ~~has only two control signals,~~ uses one ~~to~~ control signal for magnitude and one to control signal phase~~, yet it can still compensate many wavelength channels simultaneously~~. The equalizer includes a ~~coupler with a~~ controllable coupling ratio coupler for splitting the light into two portions and a controllable interferometer ~~means~~ having two arms, one arm having an additional delay which is equal to an integer multiple of $1/\Delta f$, where Δf is the channel spacing between adjacent wavelengths utilized in the optical system. The controllable interferometer ~~unit also~~ has a controllable delay in a first or second arm for adjusting the relative phase of the light passing therethrough. A coupler combines the two signal portions from the first and second arms to form the equalized output signal. ~~In a second embodiment, the equalizer includes two equalizer units connected in series to compensate for both leading and lagging intersymbol interference.~~